



Fire Products & Solutions

# **SYSTEM MANUAL**

**firetracker**

**FT1-SB**

**Single Zone  
Fire Alarm System**

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## DOCUMENT HISTORY

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## INDEX

<b>1</b>	<b>INTRODUCTION .....</b>	<b>4</b>
1.1	IMPORTANT INFORMATION.....	4
1.2	SYSTEM OVERVIEW .....	4
1.3	SPECIFICATIONS .....	5
1.4	FEATURES .....	5
<b>2</b>	<b>SYSTEM COMPONENTS .....</b>	<b>6</b>
2.1	FRONT DISPLAY MODULE .....	6
2.2	TERMINATION AND CONTROL MODULE.....	7
2.3	POWER SUPPLY .....	8
<b>3</b>	<b>CONTROLS AND INDICATIONS .....</b>	<b>9</b>
3.1	LED FLASH FUNCTIONS .....	9
3.2	BUZZER INDICATING PATTERN .....	9
3.3	CONTROL FUNCTIONS .....	10
3.4	CONTROL OUTPUTS .....	10
3.4.1	Non-supervised outputs .....	10
3.4.2	Supervised Output.....	11
3.5	ZONE INPUT.....	11
<b>4</b>	<b>INSTALLATION AND COMMISSIONING.....</b>	<b>13</b>
4.1	INSTALLATION .....	13
4.1.1	FT1-SB Installation.....	13
4.1.2	Wiring.....	15
4.1.3	Visual inspection.....	15
4.2	COMMISSIONING.....	15
4.2.1	Power ON .....	15
4.2.2	Alarm & Fault Test (Test controls).....	15
4.2.3	Actual Test.....	16
<b>5</b>	<b>PRODUCT GUARANTEE.....</b>	<b>17</b>

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## FIGURE LIST

Figure 1 FT1-SB Display .....	6
Figure 2 FT1-SB Termination & Control Module.....	7
Figure 3 Din rail Power supply.....	8
Figure 4 Typical Relay or Sounder Control Circuit.....	11
Figure 5 Zone Input Circuit .....	12
Figure 6 FT1-SB Block Wiring Diagram .....	13
Figure 7 Control / Termination Module & Power Supply mounting .....	14
Figure 8 FT1-SB Front Display typical mounting .....	14

## TABLE LIST

Table 1 FT1-SB Specifications.....	5
Table 2 FT1-SB LED Indicating Patterns.....	9
Table 3 FT1-SB Buzzer Indicating Pattern .....	9
Table 4 FT1-SB Control Buttons .....	10
Table 5 Zone Input Circuit Specifications .....	11
Table 6 Compatible Actuating Devices .....	12

# 1 Introduction

## 1.1 Important Information

The Brooks Firetracker FT1-SB is a customised single zone conventional fire alarm panel designed to protect switch boards. In conjunction with compatible smoke and/or heat detectors and auxiliary devices, FT1-SB provides a complete single zone automatic fire detection and alarm system. FT1-SB is designed to meet the requirements of the Australian standard AS7240.2 and for specific use in non-critical switchboard applications such as main switch boards and motor control panels.

FT1-SB consists of 3 basic modules:

1. **Display Module:** includes all controls and indicators and provides the user interface to control and monitor the FT1-SB system. The display module is designed to be mounted on the front door of a switch board and fits into the standard square cut-out 90 x 90 mm in any switch board door cabinet. This provides full control of the system without the requirements to enter the panel and avoid exposure to live parts
2. **Termination & Control Module:** housed in a DIN rail enclosure and mounted on the equipment gear tray inside the switch board cabinet. The termination of all detectors and auxiliary outputs are available on the termination module. The termination module is interfaced to the display module via RS232. Only 4 wires are required to connect the front display module to the termination module allowing flexibility of mounting location within the switchboard cabinet.
3. **Power supply:** DIN rail switch mode power supply mounted on the equipment gear tray next to the termination and control module.

## 1.2 System Overview

Brooks FT1-SB is specifically designed for use in switchboard applications where fire detection is required within the switchboard cabinet itself rather than protecting the room within which the switchboard is located. The modular design of FT1-SB allows for easy mounting utilising the same techniques as originally used in the switchboard design, i.e. standard meter case format and DIN rail mounting.

The system continually monitors the zone circuit for normal, alarm and fault (short or open circuit) conditions. The system provides alarm, fault and disable (isolate) voltage free contacts and a fully supervised 24VDC switched output to initiate external ancillary devices or as an input to local system monitoring such as a building management system.

FT1-SB system utilises a non-battery backed 24VDC power supply. The DIN rail switch mode power supply has a wide range of mains input voltages and an adjustable 24VDC output.

## 1.3 Specifications

Table 1 FT1-SB Specifications

Feature	Specification
Mains Power Supply	Input: 85-264VAC Output: 24VDC adjustable +/- 10%, 1 Amp
Current Consumption	Quiescent 50 mA Alarm 150 mA
Cable Length (between display & Term.)	Up to 3 metres
Operating Temperature	0°C to +50°C.
Operating Humidity	5-95%, non-condensing.
IP Rating	IP31
End of Line Resistor	Zone Circuit 3k9 Supervised Output 47k
Alarm Voltage Output	24VDC supervised output limited to 0.5 Amp
Alarm Relay Output	Change over alarm contact 230VAC @ 5 Amp Change over alarm relay contact 24VDC @ 0.5 Amp
Fault Relay Output	2 x Change over fault relay contact 30V @ 0.5 Amp
Disable Relay Output	Changeover zone disable relay contact 30V @ 0.5 Amp
Dimensions	Display Module - 96mm x 96mm x 72mm (H/W/D) Termination Module - 90mm x 106mm x 58mm (H/W/D) Power Supply – 90mm x 22mm x 100mm (H/W/D)

## 1.4 Features

The Brooks FT1-SB system is designed to utilise state of the art technology:

- Microprocessor based system for both display and termination/control modules.
- Easy to install, standard meter enclosure DIN rail termination module and power supply
- Intuitive indication and controls, high intensity LED indicators and pushbutton switches.
- Transparent protective cover for the display module.
- Fully supervised single zone detector circuit.
- Modular design for ease of mounting.
- Audible buzzer with different patterns for alarm and fault warning
- Universal 230VAC input DIN rail switch mode power supply, output 24VDC @ 1Amp

## 2 System Components

### 2.1 Front Display Module

The front display of Brooks FT1-SB is shown in Figure 1.



Figure 1 FT1-SB Display

The front display of FT1SB comprises indicators and controls for the system functions as shown Figure 1 above. The alarm zone facility is segregated and includes a separate controls and LED indicators for each function, i.e. alarm test, fault test and disable (isolate).

A 'Power ON' and 'Common Fault' indicators are provided to indicate that the mains power is applied and to identify if a system fault is present (see Table 2 page 9)

FT1-SB provides a mute facility to silence the panel buzzer. Any new event, alarm or fault, will re-activate the buzzer.

A reset control is also provided to reset any latched alarm or fault condition.

## 2.2 Termination and Control Module

The Termination & Control Module of Brooks FT1-SB is shown in Figure 2 below.



Figure 2 FT1-SB Termination & Control Module

The termination and control module to be mounted on a DIN rail at a convenient location within the switchboard cabinet. The module as shown in Figure 2 above provides the termination point for all the field wiring and power supply. It is connected to the front display user interface module via 4 wires, two used to supply 24VDC (0V & 24V) and two for communications via RS232 (Rx & Tx).



## 2.3 Power Supply

Brooks FT1-SB is powered by a DIN rail switch mode power supply as shown in Figure 3 below



Figure 3 Din rail Power supply

### Features:

- Universal AC input
- Short circuit / Overload / Over voltage Protections
- Can be installed on a 35mm DIN rail
- LED indicator for power on
- No load power consumption
- Current Range 0-1A
- +/-10% voltage adjustment
- 84% efficiency
- AC current consumption 0.35A @ 240V
- Complies with safety, EMS immunity and EMI standards

## 3 Controls and Indications

Except the “Power ON” indicator, the default state of the LED indicators and the buzzer are OFF.

### 3.1 LED flash functions

The FT1-SB LED indicators use the following flash pattern to signal the system conditions.

Table 2 FT1-SB LED Indicating Patterns

Indicators	Pattern	Function
Power On	Steady On	Power On
Zone Alarm	Flashing Steady on	Alarm Test True Alarm
Zone Fault	Flashing Steady	Fault Test Open or short circuit fault
Zone Disable	Steady	Zone outputs disabled
Common Fault	Steady on	Memory Fault Communication Fault Supervised Output Fault Zone Wiring Fault

### 3.2 Buzzer Indicating Pattern

Table 3 FT1-SB Buzzer Indicating Pattern

Function	Pattern
Alarm	Continuous sound
Fault	Pulsing one pulse every 3 seconds
Mute	One pulse only to silence the buzzer
Any Key	One pulse for every button pressed

### 3.3 Control Functions

Table 4 FT1-SB Control Buttons

Control	Condition	Description
Buzzer Mute	Buzzer Off	Silences the panel buzzer until a new fault or alarm occurs
Reset	System resetting	Reset active alarm or fault Disable active test mode. Note: If alarm or fault condition still active, the alarm or fault will re-activate
Alarm Test	Alarm LED flashes once every second. All alarm outputs active	Perform zone alarm test. It takes approximately 3 seconds for the alarm condition to be detected and verified before the alarm relays and buzzer become active
Fault Test	Fault LED flashes once every second Fault relay activate	Perform zone fault test. It takes approximately 3 seconds for the fault condition to be detected and verified before the fault relay and buzzer become active
Disable	Disable LED Steady on	Disable all alarm or fault outputs Energise disable relay Zone alarm or fault LED remains illuminating

### 3.4 Control Outputs

#### 3.4.1 Non-supervised outputs

The non-supervised outputs include the following.

- Alarm condition relay output, 2 sets of changeover relay contacts
- Fault condition relay output, 2 sets of changeover relay contacts
- Disable condition relay output. 1 set of changeover relay contacts

### 3.4.2 Supervised Output

FT1-SB provides one supervised voltage output protected with 1 Amp fuse. External relays, sounders, or strobes, shall be connected as shown in Figure 4.

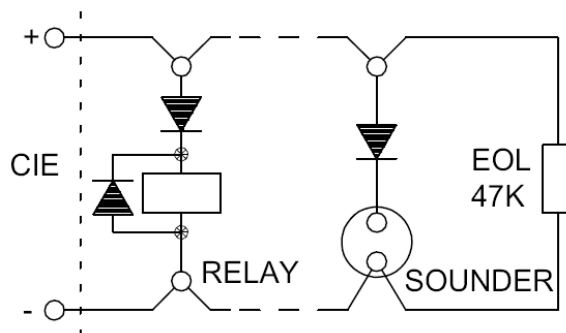


Figure 4 Typical Relay or Sounder Control Circuit

If the supervised output is not used, the EOL resistor must be installed on the output terminals on the control / termination module. The EOL resistor type is 47K, 1/2W or 1W, 1%, metal film.

### 3.5 Zone Input

The zone input specifications and compatible devices are listed in Table 5 and Table 6.

Table 5 Zone Input Circuit Specifications

Item	Description
Number of detectors per zone	0 – 40, including MCPs if any
Number of detectors in alarm state	Up to 2 detectors including MCPs, heat and smoke detectors.
Zone current limit	42mA
Typical Zone quiescent current per zone	6mA
Typical zone input resistance in alarm conditions per zone	560 Ohm

Table 6 Compatible Actuating Devices

Part No.	Manufacturer	Description
4452	Panasonic	Conventional photoelectric smoke detector
4375	Panasonic	Conventional heat detector 60° C
4376	Panasonic	Conventional heat detector 80° C
6295	Panasonic	Conventional enclosed heat detector 60 degrees
6296	Panasonic	Conventional enclosed heat detector 80 degrees
6297	Panasonic	Conventional enclosed heat detector 100 degrees
6298	Panasonic	Conventional enclosed heat detector 120 degrees
MRCSTR	Menvier	Red MCP complete with 470 / 680 Ohm alarm resistance.

The typical zone input circuit is shown in Figure 5.

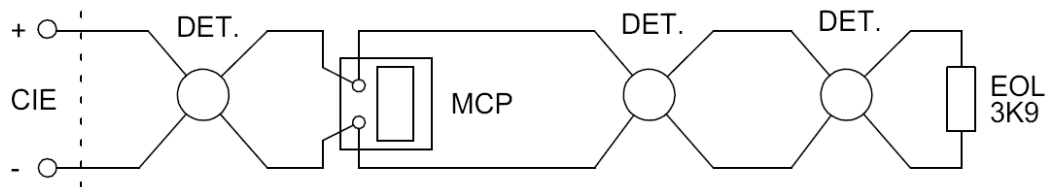


Figure 5 Zone Input Circuit

If the zone input is not used, an EOL resistor must be installed on the zone input terminals, otherwise a fault condition will be generated. The zone EOL resistor type is 3k9, 1W, 1%, metal film.

## 4 INSTALLATION AND COMMISSIONING

This chapter provides the installation and commissioning guidelines. The installation and the commissioning of Brooks FT1-SB shall be carried out in accordance of AS3000. The block wiring diagram of FT1-SB is shown in Figure 6 below.

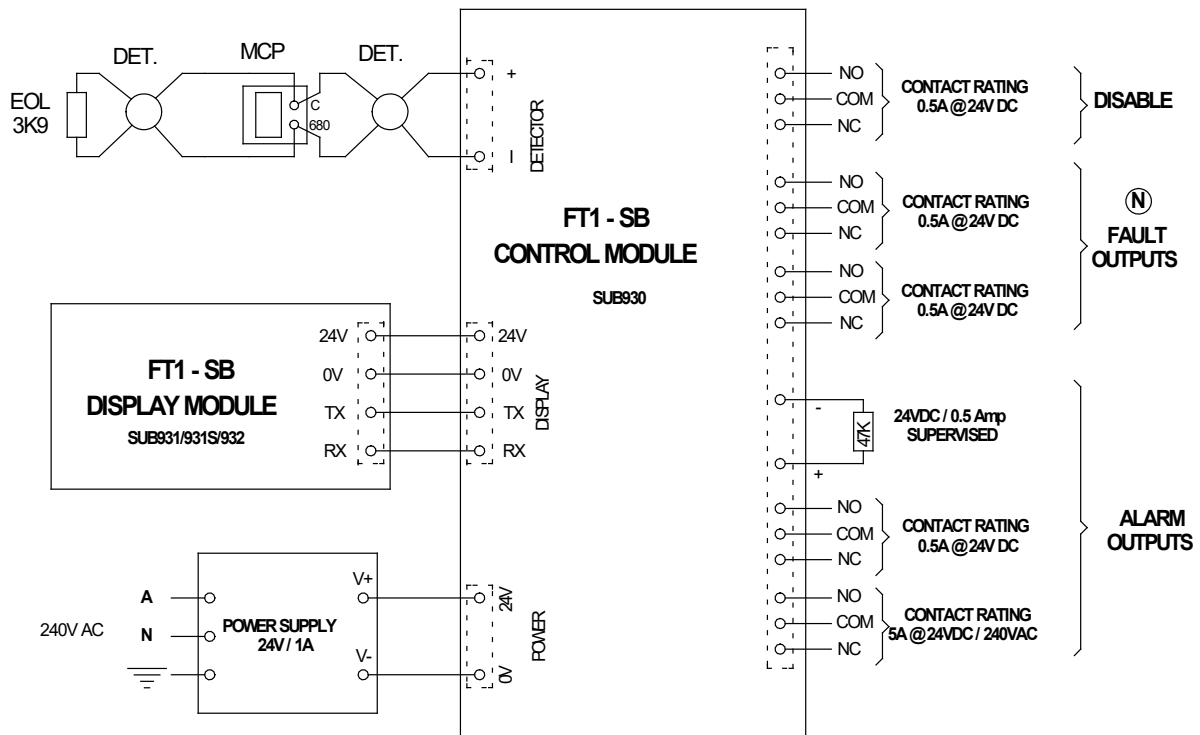


Figure 6 FT1-SB Block Wiring Diagram

### 4.1 Installation

#### 4.1.1 FT1-SB Installation

1. The control / termination module and the power supply are designed to be DIN rail mounted. It can be installed at a convenient location within the switchboard cabinet and connected to the display module via 4 core cable as shown in Figure 7.
2. The display module is to be mounted via a standard 90x90mm square cut out on the front door of a switch board. Please refer to the mechanical drawing of the system cabinet as shown in Figure 8.
3. Before the installation is completed, check and secure all the electrical connections.



Figure 7 Control / Termination Module & Power Supply mounting



Rear



Front

Figure 8 FT1-SB Front Display typical mounting

### 4.1.2 Wiring

The wiring of FT1-SB must be carried out according to the block wiring diagram shown in Figure 6, page 13.

### 4.1.3 Visual inspection

Full functional testing and visual check is carried out in the factory for FT1-SB before delivery. Upon completion of installation and prior to applying power, a visual inspection should be carried out to ensure:

- All detectors are connected with the correct polarity.
- End of Line resistor 3K9 is fitted in the last detector or MCP in the zone circuit.
- Where the supervised output is used, the end of line resistor 47K is fitted on the last device in the output circuit as shown in Figure 4.
- The connection of mains power to the power supply is correctly terminated.

## 4.2 Commissioning

### 4.2.1 Power ON

The Power ON Procedures to be carried out during on-site commissioning as follow:

1. Turn ON the circuit breaker that connects mains power to FT1-SB power supply. Check that the green mains "Power ON" LED on the power supply module is illuminated.
2. On the front Display, check that only the green 'Power ON' LED is illuminated, all other LED indicators should be extinguished
3. Measure the DC voltage on the power supply output between +V and -V. The voltage should be 24Vdc +/- 0.2V. If the voltage requires adjustment, locate the "+V ADJ" trim pot on the front of the power supply module and adjust the voltage to be within tolerance.

### 4.2.2 Alarm & Fault Test (Test controls)

FT1-SB front display provides 3 controls for the zone circuit; alarm test, fault test and disable. The alarm test and fault test procedures may be carried out as shown below:

1. Press the alarm test control button, check:
  - Alarm LED flashing
  - Buzzer is On
  - Alarm relays and supervised output activated.
2. Press the Silence Buzzer control, the buzzer stops sounding.
3. Press Disable, all alarm outputs de-activate, the alarm LED remains flashing
4. Press the "Reset" button, alarm relays de-energise and the alarm LED turns off.
5. Re-Press the 'Disable' control to reenale the system.
6. Press the fault test button and check the following:
  - Fault LED is flashing
  - Buzzer is On
  - Fault relay is de-energised (normally energised)



### **4.2.3 Actual Test**

#### **Alarm Test**

1. Using an aerosol smoke can, spray each smoke detector in turn and check the following:
  - Alarm LED illuminates steady
  - Buzzer is steady On
  - Alarm relays on the Control / Termination Module are energised
  - Supervised alarm output is active (24V on the terminals)
2. Press "Silence Buzzer" control, buzzer will silence.
3. Press "Reset" control, alarm relays de-energise and the alarm LED turns off

#### **Fault Test**

1. Remove the last detector in the circuit (EOL) to simulated zone open circuit and check the following:
  - Zone fault LED and common fault LED illuminate steady
  - Buzzer is pulsing once every 3 seconds
  - Fault relay on the Control / Termination Module is de-energized
2. Press "Silence Buzzer" control, buzzer will silence.
3. Re-mount the detector, check that the fault LED remains illuminated.
4. Press "Reset" control, fault LED turns off

#### **Disable Test**

1. Press disable control, ensure disable LED illuminates
2. Carry out an ALARM TEST as shown above, ensure the alarm LED illuminates but the alarm outputs do not function.
3. Carry out a FAULT TEST as shown above, ensure the fault LED illuminates but the fault outputs do not function.
4. Re press the disable control to re-enable the system.

## 5 PRODUCT GUARANTEE

Brooks guarantees the FT1-SB control and indicating panel for a period of either fifteen (15) months from the date of purchase or twelve (12) months from the date of installation, whichever is the lesser. If a product has any defect due to faulty workmanship or material it will upon return to Brooks be repaired or replaced free of charge.

If FT1-SB panel, any smoke/heat detectors or any other equipment supplied by Brooks should become defective within the guarantee period, it must be returned to Brooks, with proof of purchase, carefully packaged, with the problem clearly stated. Brooks shall at its discretion repair or replace the faulty unit. If returning the complete product all accessories and documentation **MUST** be returned.

This guarantee only applies to normal conditions of use and service, and does not cover damage caused to the product or its components as a result of an accident, neglect, misuse, unauthorized dismantling, or contamination howsoever caused, incorrect installation, careless handling or where repairs have been made or attempted by others. Onsite warranty repairs are not part of this guarantee. This guarantee excludes incidental and consequential damage. This guarantee does not cover costs associated with the removal and/or installation of equipment

No other guarantees written or verbal are authorised to be made on behalf of Brooks. All other conditions and warranties whether expressed or implied are, to the extent permitted by law, hereby excluded.

As Brooks has no control over the system's design, installation to the relevant Australian Standard or maintenance, the company and its agents take no responsibility for any damage, financial loss or injury caused to any equipment, property or persons resulting from the use of the FT1-SB system

Do not interfere with any components of FT1-SB system or attempt to tamper with it. This will invalidate the guarantee, but more importantly may expose the user to shock or fire hazards. This guarantee is in addition to your statutory rights as a consumer.



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